METADATA FOR THE 1996 SOUTH CENTRAL COAST LAND USE SURVEY DATA

Originator:

California Department of Water Resources

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Abstract:

The 1996 South Central Coast land use survey data set was developed by DWR through it's Division of Planning and Local Assistance. The data was gathered using aerial photography and extensive field visits, the land use boundaries and attributes were digitized, and the resultant data went through standard quality control procedures before finalizing. The land uses that were gathered were detailed agricultural land uses, and lesser detailed urban and native vegetation land uses. The data was gathered and digitized by staff of DWR's Southern District and the quality control procedures were performed jointly by staff at DWR's DPLA headquarters from Southern District.

The finalized data include DWG files (land use vector data) and shape files (land use vector data).

Purpose:

This data was developed to aid in DWR's efforts to continually monitor land use for the main purpose of determining the amount of and changes in the use of water.

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Data Development:

1. The aerial photography used for this survey was taken in May through September of 1989 for Santa Barbara County and from November through December of 1992 and in April of 1995 for San Luis Obispo County. The photographs (natural color prints, 9" x 9") were visually interpreted and land use boundaries were drawn on USGS paper 1:24,000 quadrangles.

2. The quad maps were taken to the field as field sheets, and virtually all the areas were visited to positively identify the land use. The site visits occurred in September and October of 1995; March and April of 1996; and August and September of 1996. Land use codes were printed within each area on the field sheets.

3. Using AUTOCAD, the land use boundaries and attributes were digitized (using a standardized digitizing process) from the field sheets on a digitizing tablet.

4. After quality control/assurance procedures were completed on each file (DWG), the data was finalized.

5. The data was further processed to convert from observed data to interpreted data. A county-wide data file was first created. This data file represented the actual observations from the site visits. Then that file was further processed to yield a final file which represented the interpreted land use for the year.

   An explanation of interpreted land use: Our land use survey digital processing system is designed to be able to summarize crop and other land use acreage. When performing multi-visit surveys, our observation attributes are just that, observations. A 40 acres field might have an alfalfa crop observed during all three site visits, and the resulting digitized attributes would be a triple crop, alfalfa followed by alfalfa followed by alfalfa. Using our acreage summarizing system, it would summarize the crop acreage as 120 acres of alfalfa (40 acres of alfalfa, followed by another 40 acres of alfalfa, followed by another 40 acres of alfalfa). In reality, there was only one crop of alfalfa, seen three times. The interpreted land use for this field would be a single crop of alfalfa, and our acreage summarizing system would correctly result in 40 acres of alfalfa. The interpretation is required to ensure that correct crop acreage is determined.

Data Accuracy:

The land use boundaries were hand drawn onto USGS 1:24,000 quads, and digitized on a digitizing tablet using AUTOCAD. For those areas where the lines were drawn onto USGS quads and digitized, the accuracy is less than that of the quads (about 50 foot accuracy).

The land use attribute accuracy is very high, because almost every delineated field was visited in the field. The accuracy is less than 100 percent because some errors must have occurred. There are three possible sources of attribute errors which are:

1) Misidentification of land use in the field (and entering that incorrect attribute on the field sheet);
2) Correct identification of land use, but entering an incorrect attribute on the field sheet, or;
3) Accidentally affixing an incorrect attribute during the digitizing process.

Projection Information:

The DWG and shape files are in a transverse mercator projection, with identical parameters to UTM projections, except the central meridian is -120 degrees (120 degrees west). For comparison, UTM 10 has a central meridian of 123 degrees west, and UTM 11 has a central meridian of 117 degrees west. This projection allows virtually all of the geographic area of California to be in one 6 degree zone (as opposed to two zones, UTM 10 and 11).

Projection:	Transverse Mercator
Datum:	NAD27
Units:	Meter
Scale Reduction:	0.9996
Central Meridian:	120 degrees west
Origin Latitude:	0.00 N
False Easting:	500,000
False Northing:	0.00

Land Use Attributes:

All land use attributes were coded using the Department's Standard Land Use Legend dated July 1993 (93legend.pdf). The legend explains in detail how each delineated area is attributed in the field, and what the coding system is.

The actual land use code that is printed onto the field maps is different in arrangement than the codes that result from the digitizing process. The file attributes.pdf is a detailed explanation of the coding system used for both coding the field sheets, and the codes that end up in digitized form in the database files associated with the shape files.

Information on the AUTOCAD (DWG) Files:

The land use data is available in AUTOCAD 12 format by quad, with one file per quad. The file naming convention is 96SXXXXX.DWG, where XXXX is the DWR quadrangle number. For example, file 96SX5431.DWG is the AUTOCAD drawing file for the 1996 South Central Coast land use survey for quad 5431 (the San Luis Obispo quad).

Every quadrangle file has identical layers, nomenclature, and line colors. They are as follows:

Layer	Description	Color
0	AutoCAD's default layer	White
CQN	California DWR quad number	Cyan
GSN	USGS quad number	Cyan
LUB	Land use boundary lines	Yellow
LUC	Land use codes for GRASS	White
LUT	Visible land use text	Green
QB	The quad's boundary	White
QN	Quad name	Cyan

Following is an explanation of the attributes (for each delineated area) in the LUC layer of each quad file:

ACRES:	Number of acres in the delineated area (may or may not be present)
WATERSOURC:	The type of water source used for the delineated area
MULTIUSE:	Type of land uses within the delineated area
CLASS1:	The class for the first land use
SUBCLASS1:	The subclass for the first land use
SPECOND1:	The special condition for the first land use
IRR_TYP1:	Irrigated or non-irrigated, and irrigation system type for the first land use
PCNT1:	The percentage of land associated with the first land use
CLASS2:	The class for the second land use
SUBCLASS2:	The subclass for the second land use
SPECOND2:	The special condition for the second land use
IRR_TYP2:	Irrigated or non-irrigated, and irrigation system type for the second land use
PCNT2:	The percentage of land associated with the second land use
CLASS3:	The class for the third land use
SUBCLASS3:	The subclass for the third land use
SPECOND3:	The special condition for the third land use
IRR_TYP3:	Irrigated or non-irrigated, and irrigation system type for the third land use
PCNT3:	The percentage of land associated with the third land use

Information on the Shape Files:

Shape files were created for each quad, and one for the whole survey area. The naming conventions used for the quad DWG files is used for the quad shape files (for example, 96SX5431.shp, 96SX5431.shx, and 96SX5431.dbf for quad number 5431, the San Luis Obispo quad). The name of the shape files for the whole survey area is 96SX.shp (with the original observations) and 96SXINT.shp (with the interpreted data). Following is an explanation of the land use attributes in the DBF files:

BL_X:	This is the X coordinate of the interior point in the delineated area
BL_Y:	This is the Y coordinate of the interior point in the delineated area
ACRES:	Number of acres in the delineated area (may or may not be present)
WATERSOURC:	The type of water source used for the delineated area
MULTIUSE:	Type of land uses within the delineated area
CLASS1:	The class for the first land use
SUBCLASS1:	The subclass for the first land use
SPECOND1:	The special condition for the first land use
IRR_TYP1A:	Irrigated or non-irrigated for the first land use
IRR_TYP1B:	Irrigation system type for the first land use
PCNT1:	The percentage of land associated with the first land use
CLASS2:	The class for the second land use
SUBCLASS2:	The subclass for the second land use
SPECOND2:	The special condition for the second land use
IRR_TYP2A:	Irrigated or non-irrigated for the second land use
IRR_TYP2B:	Irrigation system type for the second land use
PCNT2:	The percentage of land associated with the second land use
CLASS3:	The class for the third land use
SUBCLASS3:	The subclass for the third land use
SPECOND3:	The special condition for the third land use
IRR_TYP3A:	Irrigated or non-irrigated for the third land use
IRR_TYP3B:	Irrigation system type for the third land use
PCNT3:	The percentage of land associated with the third land use
UCF_ATT:	Concatenated attributes from MULTIUSE to PCNT3

Important Points about Using this Data Set:

1. The land use boundaries were either hand drawn directly on USGS quad maps and then digitized, or digitized on-screen using corrected imagery. They were drawn to depict observable areas of the same land use. They were not drawn to represent legal parcel (ownership) boundaries, or meant to be used as parcel boundaries.

2. This survey was not a "snapshot" in time, but incorporated three field visits for agricultural areas. The original land use attributes of each delineated area (polygon) were based upon the surveyor’s observations in the field at those times, and are reflected in the quad DWG and shapefiles, and in the survey wide shape file 96SX.shp. For the survey wide shape file 96SXINT.shp, the attributes are the interpreted results.

3. If the data is to be brought into a GIS for analysis of cropped (or planted) acreage, two things must be understood:

   a. The acreage of each field delineated is the gross area of the field. The amount of actual planted and irrigated acreage will always be less than the gross acreage, because of ditches, farm roads, other roads, farmsteads, etc. Thus, a delineated corn field may have a GIS calculated acreage of 40 acres but will have a smaller cropped (or net) acreage, maybe 38 acres.

   b. Double and multicropping must be taken into account. A delineated field of 40 acres might have been cropped first with grain, then with corn, and coded as such. To estimate actual cropped acres, the two crops are added together (38 acres of grain and 38 acres of corn) which results in a total of 76 acres of net crop (or planted) acres.

4. Water source and irrigation type information were not collected for this survey.